

ABSTRACT

In an epitaxial substrate comprising a bipolar transistor structure having a collector layer (3), base layer (4) and emitter layer (5) on a GaAs substrate (2), the base layer (4) is configured a lower base layer (41) having a required carrier concentration, an upper base layer (42), and a low carrier concentration layer (43) provided between the lower base layer (41) and the upper base layer (42) that has a ballast effect. The lower base layer (41) or the upper base layer (42) may be omitted. The higher the temperature of the low carrier concentration layer (43) portion is, the easier it is for electrons to pass therethrough, which has the effect of raising the amplification factor, thereby helping the transistor heat stability characteristics.